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U.S. Department of Agriculture

SHOULD YOU JOIN THE TREND TO CLOSER ROWS FOR CORN ?

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THE ROWS GET NARROWER IN CORN . . .

Get just about any two corn growers together over coffee this winter, and likely as not, they'll soon be talking about inches—the row-spacing kind.

The topic has warmed up over the past few years as some growers, feeling they've boosted corn yields to the limit by ordinary means, have narrowed the gaps between rows, crowding more growing plants onto their fields.

The idea sounds simple, and it's not really new. But carrying it out is the tough part, requiring a big cash outlay and good management for a relatively minor extra gain in output per acre. Hence the debate.

Beyond debate, however, is the trend to narrower rows. The Statistical Reporting Service has been keeping tabs on the trend for several years through its objective yield-sampling program, conducted during growing seasons.

SRS data show the trend has caught on fastest in the leading corn States. For sample plots in the important North Central States the space between rows for the 1967 crop averaged 38.1 inches, the narrowest among the regions sampled. Three years earlier, the spacing had been 1.5 inches wider.

Other areas have also had a narrowing, but not as much. Since 1964, for example, plots in important South Atlantic States have had a 1.3-inch shrinkage in row spacing to 39.2 inches on the average.

Obviously, the typical farmer isn't narrowing his rows by the inch or two the averages imply. Instead, a few growers are cutting down from the fairly standard 40-inch row to perhaps 30 inches, or even 20 inches.

The rest are staying with 40 inches—not because of nostalgia for the horse for which the 40-inch rows were designed, but because a switch from good modern equipment that handles the standard row to new machinery for narrower rows is costly.

The switch, to be profitable, also requires much else. Listen to a leading Illinois grower of corn in 20-inch rows:

"We spent 6 years planning, fertilizing, and finding out what our soils would produce, and finding the hybrids we wanted. Then we went to the narrow rows." On thirteen-hundred acres.

To what advantage? This past fall, he figured his average yield at 160 bushels an acre, with one field maybe tops at 211 bushels. Neighbors with standard row spacing of about 40 inches, he estimated, were getting top yields of 180–190 bushels.

He wasn't talking about plain old corn farmers. The average corn yield nationally for 1967 was just over 78 bushels an acre. So narrow rows don't appeal to everyone, even some of the best. But the trends point in that direction.

In the 1930's, experiment station workers in Iowa studied the effects of corn rows as narrow as 21 inches, and they got yields of up to 85 bushels an acre. Plant populations in the trial plots were 14,000 stalks per acre. In the SRS samplings of Iowa cornfields last year, plant populations averaged 16,000 stalks per acre.

Plant counts per acre have been rising steadily the past few years (up 16 percent in the North Central States since 1964) reflecting mainly the narrowing of rows and a trend to drilling of corn at planting time rather than hill seeding it.

. . . AND SOYBEANS

The average row spacing for soybeans has also been narrowing recently.

As measured in only 2 years of SRS objective yield determinations in six States, average space between rows in sample plots declined from 1966 to 1967 in all except one State.

Here's the record:

	Inches	
	1966	1967
Ohio	31.2	30.1
Indiana	36.8	35.6
Illinois	36.9	36.5
Minnesota	36.5	36.6
Iowa	38.0	37.6
Missouri	36.9	33.8

The much narrower rows in Ohio than in the other States reflects more acreage being drill planted either solid or with alternate drill holes plugged.

Rural Dilemma: Not Enough Good Jobs

The arithmetic of rural population points to continued imbalance unless new, paying jobs become available in farm communities.

Although many rural communities are successfully creating new employment opportunities, full employment for working-age people who live in rural places remains only a goal.

Inadequate opportunity is a problem for both young and older workers, but it affects them differently.

For some young rural people, jobs are scarce. Job openings on or off the farm have been few relative to the number of young rural men who need them.

A rural population study for 1960 indicates how this has happened:

—In 1960, there were 13.5 million rural men of working age (those residing in open country or towns of less than 2,500).

—By 1970, about 3 million will die or reach retirement age 65.

—But 5.3 million young men will reach age 20 in the present decade.

—This means that 177 men are reaching working age for every 100 who are likely to leave the work force.

—But, in 1960, there were not enough new jobs opening up to handle this influx into the rural work force.

—USDA has estimated that in 1960 about 44 percent of the young men reaching age 20 in rural areas could only have found work by moving or by commuting to urban places.

So, unless the rate of rural-urban migration or the number of additional new jobs occurring each year has changed since 1960, two young men in five are surplus in the rural job market.

At the older end of the work force, sporadic employment combined with relatively low wages has created a situation called underemployment.

Underemployment in this sense is measured by the additional man-years of salary rural workers would get if fully employed at U.S. average wages for their age and skills.

Rural workers in 1960, according to USDA estimates, lost a total of 2 million man-years of potential salary through underemployment. Rural workers over 35 lost 1.2 million man-years, younger workers the rest.

The younger workers are in a better position to cope with the possibility of low pay or intermittent employment, and they might be able to leave for other job markets. Older workers seldom have the opportunity to leave. Older nonfarm rural workers have less chance to retrain or relocate, while those who farm may not be able to increase their farm sales as fast as younger farmers.

These problems of younger and older rural persons point out the need for more rural work opportunities. Beyond the immediate effects that too few jobs and underpaying jobs have on the individuals concerned are the effects on all phases of life in rural communities:

—Financial resources may be reduced, making the tax burden heavier on remaining residents.

—Declining memberships weaken community organizations.

—New leadership becomes scarce as the ablest and best-educated young people are lost.

The unemployment of the young, the underemployment of the old, and the decline of rural communities will not be corrected by jobs alone. But adequate income opportunity can lay the foundations for rural renewal.

How many jobs are needed? The number can only be roughly estimated. However, a projection has been made, based on the current rate of decline in the rural population.

A yearly increase of 300,000 in the number of nonfarm rural jobs would be needed just to offset an expected decline in farm jobs during the next few years.

This rate of increase would keep the rural work force up to its present level; it would not accommodate the surplus of working-age people in the country. So some migration of workers would continue.

The goal of providing all rural working people with jobs would be accomplished in the projection if the yearly increase in rural jobs were to rise to 550,000.

A new job in the country, however, will not moderate the rural-urban migration unless it can be made attractive to the rural person eyeing employment in the city. In other words, rural jobs

must compete in quality with those offered on the urban market.

And to create balanced rural economies, these jobs should include such industries as recreation, government, education, and health, as well as the traditional rural manufacturing and processing industries.

Max Jordan
Economic Research Service

A New Industry Puts Area's Wives to Work

Industrialization may not be the cure-all for rural problems, but it may be the spark that sets off other local development activity.

The Economic Research Service recently completed a survey of the impact of new industry on an eight-county area in northern Arkansas.

In 1960, a large apparel plant opened in Gassville and, until 1963, was the single major manufacturing firm in the area.

There were 750 jobs in the shirt factory—and almost all of them were jobs to be handled by women. Until they began working in the factory, the women had not been considered part of the labor force of the area—having never been included in employment figures. Thus, while the plant brought new jobs and larger incomes to some families, its coming created few jobs for the unemployed men.

During 1960–63, unemployment in the eight-county area rose 34 percent, although the population remained almost unchanged. Statewide, unemployment rose 1.2 percent. The unemployment rate had been low before the plant was established. More persons were in the labor force and the turnover in covered unemployment was high after the plant began its operations.

Men were still unemployed, or underemployed, involved in part-time farming at home, and depending on the "lady of the house" to make a major contribution to their subsistence living.

The women's employment has brought an increase in the area's income which has enlivened the economy. This is making the area more attractive to other companies which undoubtedly will, in time, provide greater opportunity for the total population.

Pig Crop This Spring May Trail 1967 Pace

The most recent pig crop report, issued in late December by the Crop Reporting Board, showed little change from a year earlier in the number of hogs and pigs on U.S. farms. Farrowing intentions of farmers through May 1968 were also about like those of December 1966–May 1967.

There were 57.9 million hogs and pigs on U.S. farms on December 1. This was 1 percent above a year earlier. Hogs kept for breeding purposes totaled 9 million, up 2 percent.

Farmers reported intentions to farrow 6.5 million sows during December 1967–May 1968. This was 1 percent less than during the same period last year.

If these intentions are realized and the number of pigs saved per litter follows the trend of recent years, the December–May pig crop would approximate 47.9 million head, 1 percent below last year.

Farrowing intentions in the 10 Corn Belt States during December–February indicate the production of 1,749,000 head, about the same as a year earlier. Decreases in Ohio, Illinois, and Nebraska were offset by increases in five other States. No change was expected in Iowa and Wisconsin.

Expected farrowings by months in these 10 States are: December—447,000 sows, up 1 percent; January—573,000, up 3 percent; February—729,000, down 2 percent.

Reported breeding intentions indicate 3,248,000 sows to farrow in March–May 1968 in the 10 Corn Belt States, a decline of 3 percent from a year earlier. Small increases in Indiana, Wisconsin, and Kansas were more than offset by declines in six other States. No change was indicated in South Dakota.

Statistical Reporting Service

FARMING IS FINE AS A WAY OF LIFE BUT DO BE CAREFUL

Farming can be a dangerous occupation.

Each year, about 2,300 fatal accidents take place on farms, not counting those which happen in farm homes. Although this number has shown little year-to-year change since 1950, the number of fatal accidents per 100,000 farm people has nearly doubled as the farm population has declined.

In 1965, the rate of farm accident deaths was nearly 19 per 100,000 people. This U.S. average conceals wide differences among farming regions.

The Mountain region had the highest rate—more than 28 fatalities per 100,000—followed by the Southern Plains and the Pacific region, each with 24.

Accident fatality rates were lower in the South, where there is relatively less exposure to the hazards of farm machinery. Rates of 13 per 100,000 in the Appalachian region and 14 in the Delta were the lowest.

COMMONPLACE CAUSES

The causes of accidental death are the everyday hazards of farmwork and recreation. Most important are machinery accidents, drownings, firearm mishaps, and falls.

Machinery, the single largest cause of fatal farm accidents, accounted for 41 percent of farm deaths in 1965.

Machinery accident deaths ranked lowest as a percentage of the total in the Appalachian, Southeast, Delta States, and Southern Plains regions. Yet they still accounted for about one-third of the total in these areas.

In the Lake States, Cornbelt, and Northern Plains, machinery deaths accounted for as much as one-half the total for 1965.

Drownings ranged from about 7 percent of all farm accidents in the Lake States to nearly 30 percent in the Southeast. Fatal accidents from firearms were about 8 to 11 percent in all regions except the Southern Plains, where they were 15 percent of the total.

Distinct patterns by age group and sex emerged from the farm-accident data for 1965.

AGE DIFFERENCES

The likelihood of a fatal farm accident was lowest for the young and the lower middle-aged.

From an accident fatality rate of 12.2 per 100,000 for children under age 15, rates rose to 22.7 for 20 to 24-year-olds. The rate then declined to about 17.1 per 100,000 for ages 25 to 44, but again increased with age, reaching 34 per 100,000 for those 65 and over.

Farm people were also found to differ according to age in the likelihood of certain types of accidents.

Fatal machinery accidents were most frequent for the 15 to 19-year olds and those aged 45–70.

Drowning claimed more than two-thirds of its victims in 1965 from the under-20 group.

Firearm fatalities were heavy in the 10–24 age group.

Falls as the cause of death rose sharply after age 50, and were very frequent for people 75 years or older.

WOMEN SAFER

In 1965, farm girls and women were accounted the safer sex. Although they constituted 48 percent of the farm population, they accounted for only 8 percent of the fatal accidents. The proportion of female-to-total fatalities likely would be greater if the data included accidents in the home.

Children figured more importantly among female accident victims than among males. One-fifth of all females fatally injured on farms in 1965 were under 5 years of age and more than half were under 20.

Drownings, the most important cause, were responsible for more than 28 percent of all deaths to females. Machinery fatalities, next most important, were 26 percent of the female total—a much smaller proportion than the 42 percent of all accidents to males where machinery was involved.

Lawrence Jones
Economic Research Service

WHAT TO DO ABOUT HAIL? INSURE . . .

Most measures to protect crops are like a dose of preventive medicine: applied before trouble has a chance to start.

But when a hailstorm hits your crop, it's like getting hurt in an accident; you aren't prepared for it. Unless, of course, you've got crop-hail insurance.

Crop-hail protection is available from insurance companies and as part of all-risk Federal crop insurance. Farmers buy most of their crop-hail insurance from the companies.

A recent study of the private insurers shows that crop-hail protection has grown increasingly popular in recent years.

For many farmers, buying more hail insurance has gone hand in hand with larger and costlier farming operations. The average number of acres planted per farm has increased; so has the cost of growing a crop and the market value of the harvested product.

Accordingly, the amount of insurance coverage bought by farmers has skyrocketed. Between 1946 and 1956, for example, the total yearly coverage rose by $1.1 billion. Growing another $1 billion in the next decade, coverage totaled $3.1 billion in 1966, with more than a half million farms having protection.

Payments on losses by the insurers in 1966 came to $55 million—almost half as much as the cost of premiums. This benefit-cost proportion, called the loss ratio, was small compared with some other recent years when hailstorms took heavier tolls.

In 1965, for example, indemnities totaled $72 million, representing a loss ratio of 62 percent. And in 1962 the loss ratio reached 75 percent.

The cost of an individual policy can vary widely depending on the area, type of crop, acreage covered, and amount of protection.

Such variations stand out when the crop-hail programs in three farming regions are compared:

—*Corn Belt.*—Over one-half of the U.S. crop-hail coverage for 1966 was bought by farmers in the Corn Belt. Soaring values of corn and soybean crops have increased the use of crop-hail insurance in the region, where $100 of coverage cost an average of $2.19 in 1966.

—*Northern Plains.*—Used largely for wheat and other small grains, crop-hail coverage amounted to 12 percent of the U.S. total in 1966; premiums averaged $6.89 per $100 in this relatively high-risk area.

—*Appalachian States.*—Insurance coverage—one-tenth of the U.S. total—is mainly on tobacco. Premiums in 1966 averaged $4.92 per $100 of coverage.

Lawrence Jones
Economic Research Service

. . . OR HOPE THAT SCIENCE HURRIES

If you have read about weather-control experiments of scientists and are thinking of dropping your crop-hail insurance protection, read the paragraphs quoted below. They are by the National Academy of Sciences and the National Research Council, as published in a report on weather-modifying efforts.

"There is a wide range of opinion on whether or not hail can be effectively suppressed or its damage mitigated."

"The U.S. experiments using ground generators or aircraft generators have been inconclusive. Major long-term experiments in Switzerland and France have been similarly inconclusive. Experiments in Argentina, however, show positive results for one type of storm and negative results for others. The Russians are far more optimistic. They claim significant success from introducing the silver iodide directly into the super-cooled high-liquid-water-content portion of the cloud by means of anti-aircraft shells and rockets."

"Because hailfall is even more variable than rainfall, a definite proof of success is all the more difficult to obtain. On physical reasoning, for example, we cannot exclude the possibility that seeding may sometimes even increase hail damage."

STEEP TAX RISE CONTINUES

State and local taxes collected on privately owned farm real estate in 1966 rose 8.6 percent over the previous year.

Kentucky with a gain of 31.7 percent and Georgia with a gain of 21 percent were among a dozen States where collections increased 10 percent or more.

Kentucky's change apparently resulted from a State court decision requiring that all property be assessed at 100 percent of its full value, while most of the Georgia increase apparently was due to a statewide revaluation program.

Elsewhere, farm property taxes rose because of reassessment of some farmland and increased government services.

One result was to raise the total real estate taxes paid by U.S. farmers to a record $1.79 billion, $140 million more than in 1965.

Another was the largest increase in decades for the average tax per acre of farmland. A 13-cent increment brought the national figure to a record $1.74 per acre.

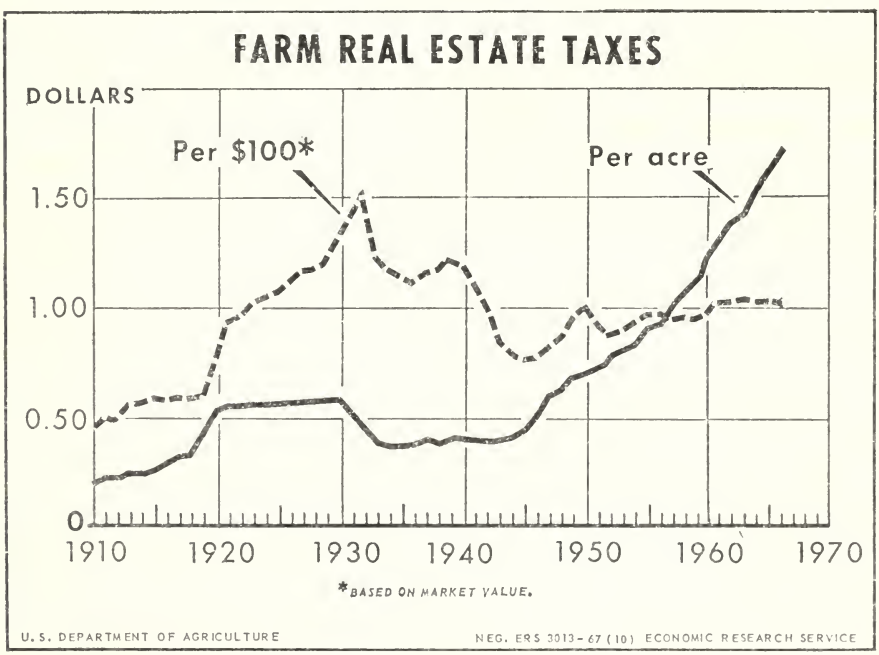
Exceptions to the trend: During 1966, less tax was collected in Alaska, Montana, New Mexico, and Utah.

For the sixth consecutive year, the rate of taxation per $100 of market value for U.S. farmland remained essentially unchanged. With taxes and land prices rising at about the same rate, the effective tax rate on farm real estate has remained at about $1.02 per $100 of market value.

Thomas Hady
Economic Research Service

Index of Tax Per Acre of Farmland, 1966 (1957–59 = 100)

Northeast	160
Lake States	159
Corn Belt	154
Northern Plains	154
Appalachia	161
Southeast	201
Delta	149
Southern Plains	161
Mountain	137
Pacific	219
United States	165



AN UP-AND-COMER IN THE CATTLE FEEDING BUSINESS

Half the cash receipts from farm product sales in this western State come from cattle and calf marketings . . . The State is one of the most important for beef finishing . . . Its name?

Colorado. The State's 2.9 million head of beef cattle as of January 1, 1967, put it in 10th place.

Feedlots are expanding. In just 5 years, 1962–67, the number of cattle in lots January 1 has increased by over 200,000. In 1967, with 500,000–600,000 head on hand each month, feedlots in Colorado made this State among the biggest in the Nation for volume. And, they were second only to California in average volume per feedlot.

The average number of cattle marketed per Colorado feedlot is around 770 head. But the State's 15 largest feedlots market about 40 percent of the fed cattle, with an average of more than 25,000 head per feedlot.

Most Colorado-fed cattle are slaughtered within the State. In 1966, the State ranked seventh in live weight of cattle slaughtered, totaling 1.6 billion pounds.

SUNFLOWER SEEDS AND THE RED RIVER VALLEY

The sunflower, a native American flower, traveled to Russia to become a big money crop.

Grown centuries ago in the lands now known as the Midwest, sunflowers as a U.S. crop have in more recent years been harvested primarily as a specialty item.

Yet, by hybridizing the New World flower, the U.S.S.R. has been able to bring sunflower seed oil yields up from 27–31 percent in 1950 to 40–44 percent in 1965. And Soviet authorities predict that new varieties will be yielding close to 60-percent oil within a few years.

By comparison, oil content for flaxseed is 36 percent, and for soybeans 20 percent.

The sunflower's success abroad has renewed farmers' interest in growing it for an oilseed crop in the Red River Valley of Minnesota and North Dakota. These States have thus far accounted for most of U.S. acreage and commercial output.

The 1967 acreage planted to sunflowers in these States was estimated at 221,000 acres—about three times the area planted in 1966.

Yields per harvested acre in these 2 States averaged 1,037 pounds, compared with the 1966 rate of 900 pounds. Total 1967 sunflower seed production in the Red River Valley and adjacent counties was around 224 million pounds, in contrast to 65 million pounds in 1966.

The 1966 gross return per acre from sunflowers in Minnesota-North Dakota averaged about $48, compared with $27 for flaxseed and $62 for soybeans.

FEWER FARMERS, BIGGER FARMS IN PART OF PA.

The number of U.S. farms dwindles, but the resources don't vanish.

A study of farms in southeastern Pennsylvania, for example, shows some of the changes that took place between 1960 and 1965. Of an original sample of 227 farmers in 1960, 14 percent had ceased farming in 1965; however, the total acreage declined only 5 percent.

From 1960 to 1965:

—Thirty-one of the 227 operators gave up farming.

—Resources of 19 of the 31 were incorporated into other farms.

—On the remaining 196 farms, average acreage rose 11 percent.

The changes in types of farms were also significant. Of the 161 dairy farmers in 1960, 22 went out of business and 32 switched to nondairy activities. Of the men who were originally nondairy farmers, two switched to dairying, and nine went out of business. Of the 196 farmers remaining in 1965, there were 109 dairy farmers and 87 nondairy farmers.

Acreage increased 13 percent on dairy farms; 3 percent on nondairy. The switchover of small dairy farmers to nondairying held down the growth of acreage on nondairy farms.

Based on Information Available January 1, 1968

MORE FED CATTLE THIS WINTER

Fed cattle marketings are expected to continue a little larger this winter than last. Later in the winter or early this spring, they will reflect increased feedlot placements in early fall.

On December 1, there were 5.9 million cattle and calves on feed in the 6 States that normally supply over half the fed cattle. This was 7 percent more than a year earlier.

VEGETABLE SUPPLIES LOWER

Fresh vegetable supplies are expected to be considerably smaller this winter than last, since acreages of most leading items are down. Early estimates for some leading items: Production of winter broccoli is down 6 percent, carrots off 22 percent, spinach 2 percent less than 1967. Cabbage production will be off 9 percent, largely because of big acreage cuts in Texas. There also are indications that output of celery and lettuce will be down about one-tenth, and tomatoes one-fifth, because of less acreage and lower yields.

Prices for fresh vegetables this winter likely will average materially above the moderate levels of last winter.

1968 RICE ACREAGE

The 1968 national acreage allotment for rice has been set at 2.4 million acres, 20 percent larger than for 1967. Tightening world supplies and anticipated larger needs for U.S. rice led to this temporary increase. The national average price support level was established at $4.60 per hundredweight, up 5 cents from that in effect for the 1967 crop.

MORE FARM FOODS CONSUMED

Total use of U.S. farm food commodities is expected to increase during 1968. Crop food commodities are expected to account for most of the increase, with little change anticipated for livestock. The increase in use of crops partly reflects carryovers of last year's large crops into 1968. Exports will also contribute to larger utilization, with increases likely for both crop and livestock commodities during this calendar year.

In 1967, there was almost no change from the preceding year in the volume of farm food commodities utilized; it remained 21 percent above the level of 1957–59. However, use of livestock foods rose 3 percent over 1966, while the volume of crop foods used slipped 4 percent.

TOBACCO EXPORTS LARGE

Exports of unmanufactured tobacco in calendar 1967 are estimated at about 575 million pounds (approximately 645 million farm-sales weight). This would be the largest calendar year total since 1946, and would top the long-time high of 1966 by 4 percent.

Compared with the first 10 months of 1966, there were gains in exports to the United Kingdom, West Germany, the Netherlands, Thailand, Switzerland, Belgium, Denmark, and South Vietnam. Exports to Sweden, Ireland, and Australia declined; those to Egypt dropped sharply.

In the first 10 months of 1967, exports of flue-cured tobacco were 4 percent ahead of those a year earlier. Exports of burley rose a tenth, while those of Maryland tobacco jumped 48 percent.

In the year ending June 30, 1968, total exports of unmanufactured tobacco may be moderately below the 627 million pounds of 1966/67—a 47-year high. The sanctions on Rhodesian tobacco trade, the export payment program, and the improved quality of recent flue-cured crops continue to favor U.S. exports. However, stocks levels in several major importing countries have increased. Also, larger supplies are available in some areas abroad, including several smaller tobacco producers that have expanded production since the ban on Rhodesian tobacco.

TOBACCO PRICE SUPPORTS

Price support levels for the eligible kinds of 1968-crop tobacco will be determined by raising the 1959 levels in accordance with changes in the average parity index for 1965–67. Available data indicate that price supports will increase nearly 4 percent over last year's level.

In both 1966 and 1967, tobacco support levels rose by 2 percent, while in 1962–65, they rose 1 percent each year.

Thus, the support level for flue-cured tobacco, which accounts for around 60 percent of U.S. tobacco production, would advance nearly 4 percent over the 59.9 cents per pound in effect for the 1967 crop.

ENGLAND HAD AN EVENTFUL AUTUMN:

Devaluation

Probably the most far-reaching economic event of 1967 was the United Kingdom's devaluation of the pound from the U.S. equivalent of $2.80 to $2.40. This action November 18—followed by devaluation in several U.K. trading partners, territories, and dependencies—ended the United Kingdom's 2-year drive to bolster its balance of payments position through austerity measures alone. For U.S. and world agriculture, it means two things.

First, it means that the United Kingdom—world's largest importer of food and agricultural products and our third largest dollar market—will have to pay more for its imports. Under the old exchange rate, a commodity that had a world market price of $280 cost a British importer £100. Under the new exchange rate, the British importer will have to pay just under £117 for the same item.

Secondly, it means that British exports are cheaper in the world market. For example, British wool that sold for £1,000 under the old exchange rate cost an American importer $2,800; under the new rate, it will cost him $2,400. (This assumes other costs remain the same.)

These changes will have a number of effects upon agricultural commodities produced in the United States. Since imports from the United States and other nations that did not devalue become more expensive to the nations that did devalue, there will be a depressing effect on U.S. exports.

However, the devaluing nations are most likely to cut back on nonessential commodities first, and thus our agricultural exports should not feel the impact of devaluation as much as our other less-essential items. In 1966, U.S. agricultural commodities exported to the United Kingdom and other countries that have devalued accounted for 30 percent of all U.S. exports to them, and were worth nearly $1 billion. Farm product exports with the highest value included corn, tobacco, soybeans and products, wheat, flour, and cotton.

Our competitive status in the world market for agricultural commodities has not changed with regard to Australia, Canada, Argentina, and other agricultural exporting nations that did not devalue.

Exports from the devaluing nations will become cheaper, causing a double impact. First, agricultural imports by the United States from these nations will become more competitive with domestic production.

Secondly, a devaluing country's exports will become more competitive with U.S. exports to third countries. For example, citrus and other fruit and vegetable exports from Spain, Israel, and Cyprus will cost importers less as a result of devaluation, while our export prices on these products are sold for undevalued dollars. And Denmark, with some lard for export, can better compete with U.S. exports to the United Kingdom because of the Danish devaluation.

O. Halbert Goolsby
Economic Research Service

Disease

The outbreak of foot-and-mouth disease that recently gripped Great Britain forced the country into a state of emergency.

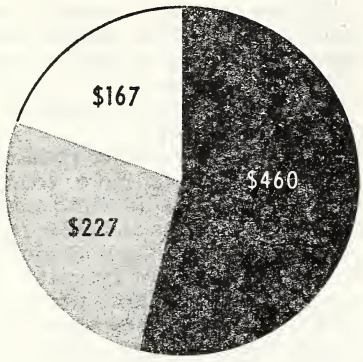
Over 360,000 cattle, sheep, and hogs have been slaughtered in an attempt to control the outbreak—the worst in Great Britain's history. Roadblocks, quarantines, travel bans, and disinfection stations have been established. And the government banned imports of meat from nations where the disease is present.

The animals slaughtered account for only 1 percent of the livestock numbers in England and Wales, but the epidemic has brought hardship to producers who now must rebuild their herds, and to rural areas where the disease localized.

In the United States, protective import measures and slaughter of infected animals have kept the number of foot-and-mouth outbreaks to nine, with the first case reported in 1870 and the last in 1929. One outbreak, spreading to the Union Stockyards in Chicago, necessitated slaughter of 170,000 animals, and another in California, over 120,000.

Economic Research Service

RELATIVE CONTRIBUTIONS TO AGRICULTURAL RESEARCH (MILLIONS OF DOLLARS)



Farm Research Mostly Private

If dollars spent on research are any indication, science's impact on production and use of farm goods will be a lot greater in the next decade.

Scientific delving into agriculture and forestry has been the trend for a long time. And by 1975 both financial support and the number of researchers are expected to increase further. Most of the funds will continue to come from private sources.

What's the scope of private agricultural research? A survey of 815 companies and foundations indicated that over half had research programs. Budgets averaged about $1 million each. Altogether, in 1965, these firms spent an estimated $460 million on research, an amount greater than combined State and Federal outlays in this area.

Convinced of its benefits, private sponsors are prepared to spend even more for research. By 1975, the private investment in agricultural research is expected to total $760 million annually, two-thirds higher than in 1965. If the number of scientists and engineers increases at a similar rate, as foreseen, they will then number 16,000.

What kind of investigation is going on in the private labs and experimental farms? As you might expect, most—by dollar count—has a practical aim. Private outfits say they are spending over 90 percent of their funds on applied research, engineering, and development. The rest goes for the more general basic research.

State and Federal farm researchers, who already spend 40 percent of their funds on basic study, along with the scientists in private laboratories, envision a larger share for this type of research by 1975.

BIRDS MAKE MANY FARMERS FLY OFF THE HANDLE

It sounds like the work of saboteurs . . .

Ohio: Heavy damage to corn.

Georgia: Daily losses of feeds from feedlots.

Michigan: Tons of blueberries and cherries destroyed.

. . . But the culprits are only birds.

Redwing blackbirds, starlings, grackles, and cowbirds are estimated to number one-half billion in the continental United States.

When they congregate in rural areas—which they often may do by the millions—local crops are threatened.

Research is being conducted on mechanical and chemical devices which repel or kill the birds, but a completely satisfactory method has yet to be developed.

As science searches for a solution, farmers try to minimize the damage by using scare devices. Some modern versions of the scarecrow include amplified distress calls, firecrackers, guns, carbide exploders, and even roving cars.

But the cost of frightening runs high, as shown by the experience of one Ohio farmer. In 1965, he kept a record of what it cost to protect 200 acres of corn.

Crops sacrificed for roadways in and around cornfields cost him $1,900 in lost sales. Truck and tractor mileage (figured on an hourly basis), cartridges, carbide exploders, and manpower cost another $2,175. Yet, even with these measures, birds took $4,100 worth of corn (at prices then prevailing).

THEY FILL MORE FEED SACKS BETTER

Fourth in a Series

On Input Suppliers

Formula feeding is "in," thanks mainly to nutritional research on feed for livestock and poultry. Gains in technology also have provided a growing market for mixed rations: Minerals, vitamins, antibiotics, and other micro-ingredients added to concentrated feeds.

Declining in importance are the old methods of moving surplus grains to deficit areas and the marketing of the milling industry's byproducts for feeding use.

Spurred by increased demand for beef and poultry in recent years, innovations have resulted in rapid growth and change in the feed processing industry.

BIGGER SHARE HANDLED

Estimated share of the four principal feed grains—corn, barley, oats, and sorghums—sold commercially rose from 40 to 60 percent between 1950 and 1965. Add in the byproduct feeds, and the 1965 share came to 70 percent. The quantity of concentrates fed to livestock and poultry that year totaled 175.5 million tons, up 40 percent from a decade earlier.

Here are two other indicators of the feed industry's growth. The value of shipments of prepared feed multiplied nearly tenfold between 1939 and 1963—from $402 million to $3.8 billion. Also, the average value of feed shipments per industry employee in 1963 was $70,164 compared with only $38,294 in 1947.

Growth has led to big changes in the feed industry's use of manpower. The ratio of production workers to technical and specialized personnel has been falling steadily in the past decade. In 1958, production workers accounted for about two-thirds of total employment; by 1963 their share had slipped to 63 percent. What's more, total employment declined, although the number of firms increased.

The decrease in employment reflects an increase in productivity. During the decade ended in 1963, employment declined just under 1 percent annually, while productivity rose an average of 5 percent, mostly because of improved technology and automation.

Automation, coming rapidly to the feed industry, has been a mixed blessing. Despite increased and more efficient production, automation has rendered many plants—even some built as recently as 1955—virtually obsolete.

MORE FEED MILLS

Especially in the last decade, there's been a mushrooming of feed mills, reflecting a trend in firm decentralization caused mainly by regional shifts in feedlots and poultry farms to the south and west of the Corn Belt. Also, there has been competition for markets in new livestock and poultry areas from local operators of grain elevators, who have expanded to include complete milling and grainbank services.

The number of feed firms in 1958–63 rose from 2,379 to 2,587. Growth among regions ranged from a net gain of three firms in the Middle Atlantic States and five in the Pacific Region to gains of 59 firms in the West North Central States and 52 in the South Atlantic Region.

Texas Tops in Mohair

The United States holds first place in production of mohair, the silky fleece of Angora goats.

U.S. goats provided 28 million pounds of mohair in 1967, somewhat below recent levels, and the smallest output since 1962. Virtually all of U.S. mohair output comes from Texas.

World production last year was 62.8 million pounds.

Only three other countries produce significant quantities of mohair: Turkey, South Africa, and Lesotho, a nation geographically surrounded by South Africa.

On the average, last year each American Angora produced 6.8 pounds of the fine wool, comparing favorably with South Africa's leading average of 7.6 pounds per animal in 1955–63.

In both the United States and South Africa, Angora goat numbers have declined since 1965, when world output was a record 66.4 million pounds.

Feedman's Choice: Remodel, Replace, Move

Burgeoning production of livestock and poultry has been making new demands on feed manufacturers for advice on livestock feeding and production, for easier credit, faster deliveries, specifically tailored feeds, and quantity discounts.

These demands, in turn, have forced the industry to make many adjustments. Major emphasis has been on more efficient facilities ideally located.

Maybe this means a new design job on the feed manufacturer's old plant. But this is all right only if it is in or near a major livestock area. Even so, the choice might be between modifying or replacing the plant, depending on its design and capacity.

In many cases the feedman has no choice. His customers are too widespread and their needs too immediate. So to meet competition he must build one or more new plants nearer the places he serves.

STUDY COSTS

USDA economists have worked out cost analyses to help the feedman decide whether to remodel the old plant or build a new one.

The specialists have come up with the data needed by the manufacturer in locating the plant nearer to the livestock operators whose stock consume the feed.

The effects of plant size, varieties of feed mixtures, number of shifts, hours of operation, degree of plant capacity to be used, and efficient utilization of production labor are important factors in the investment decision to build or remodel. In many cases one or more of these factors is as challenging to the feedman's decision as the nearness of his market.

Here are a few examples of cost estimates worked out in a recent study of simulated feed plants, ranging in size from 80- through 300-ton capacity operation on a daily basis. These examples consider costs of operation based on a single 8-hour shift, with or without pelleting and packaging.

For instance, an 80-ton model plant is estimated to cost about $310,000. The unit cost was $14.89 per ton of feed produced, without equipment for pelleting or packaging.

BETTER BIGGER

But in a 300-ton operation when the entire output was pelleted and half of that was packaged, the cost was cut almost 25 percent to $11.73 per ton. This model plant had the highest total investment in the study at about $915,000. Investment in equipment alone accounted for 40 percent of the total.

In model sizes ranging from 80- to 300-ton plants, total operating costs per ton of output ranged from $7.13 down to $3.04. Highest per ton costs were for an 80-ton operation with the entire output pelleted and packaged. Lowest cost was for the 300-ton plant with the entire output in bulk only.

Cool Cows Compliant

Before deciding which room of your house to air condition for next summer, give some thought to the milking parlor.

Cooling the air inside the cow barn can prevent the usual summer slump in milk output, research indicates.

Unfortunately, the value of extra milk produced won't cover the cost of cooling a high-ceilinged barn. But now, there might be a cheaper way.

It's called zone or snout cooling, and has been successfully used in the past to get larger litters from sows. An Agricultural Research Service engineer, testing the idea on cows being milked in a room under hot summertime conditions, found that they gave 15–20 percent more milk when their heads and neck were placed in cooled enclosures.

Compared with milking performance in a 65° F. room—

—milk output declined 25 percent when cows were milked in an 85° F. room,

—but it fell only 9–10 percent when cows in an 85° F. room had heads in an enclosure cooled to 50°–60° F.

Agricultural Research Service

SAM STAT SAYS "Check My Data"

A brief roundup

■ Acreage seeded to winter wheat for 1968 harvest totals 49.7 million acres. Except for 1966 this is the largest fall seeding in 15 years. Rye acreage for 1968 harvest, in contrast, is the smallest in 15 years, totaling 3.5 million acres. ■ Fall potato crops have grown: from 27 million hundredweight in 1965, to 228 million in 1966, to a record 232 million last December 1. ■ Production of fall-harvested apples was 14 percent below 1966. A smaller harvest of Jonathan and Wealthy varieties offset larger output of Grimes Golden and other fall varieties. ■ On December 8, winter carrot acreage was estimated at 25,000, compared with 38,100 acres last year. Acreage in California was slightly larger; acreage in Texas was down by 48 percent. ■ Production of seed for 17 kinds of turf, pasture and winter cover in 1967 was estimated at 520 million pounds, 16 percent less than in 1966.

In This Issue

Editor: Ben Blankenship

NEAR-RECORD WORTH FOR 1967 CROPS

From apples to wheat, alfalfa to watermelons, the 1967 crops are in—and their dollar values have been estimated.

The Statistical Reporting Service puts the year's value of production for 55 major crops at about $22 billion. This was $110 million less than in 1966.

The value of production is based on season average prices with an allowance for unredeemed loans and purchase agreement deliveries valued at the average loan rate.

The 1967 crops included six valued at over $1 billion each. Corn brought producers $5 billion, hay brought $2.9 billion, soybeans for beans, $2.4 billion, and wheat, $2.2 billion. Tobacco and cotton were also in the billion-dollar class.

Statewise, California led in value of all crops and in 3 of 4 crop-value categories.

1967 STATE LEADERS IN DOLLAR VALUE OF CROPS

Rank	*55 crops*	*Field and forage*	*Fruits and nuts*	*Selected seed crops*	*Commercial vegetables*
1	California	Illinois	California	California	California.
2	Illinois	Iowa	Florida	Idaho	Florida.
3	Iowa	Texas	Washington	Washington	Texas.
4	Texas	Minnesota	New York	Oregon	Arizona.
5	Minnesota	California	Michigan	Utah	New York.

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